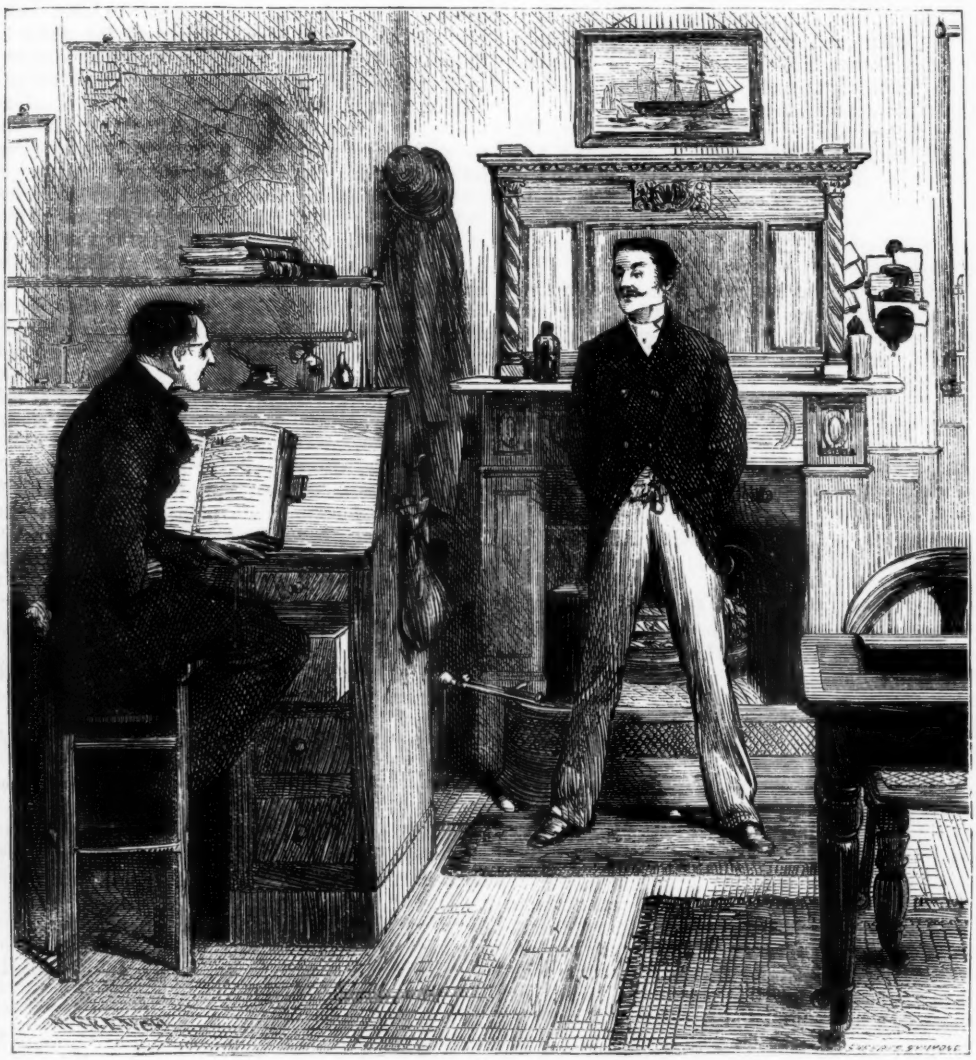
THE LEISURE HOUR.

BEHOLD IN THESE WHAT LEISURE HOURS DEMAND,
AMUSEMENT AND TRUE KNOWLEDGE HAND IN HAND.—*Cowper.*



MR. ADOLPHUS APPEARS ON THE SCENE.

LOMBARDY COURT:

A STORY OF THE CITY AND THE SEA.

CHAPTER XI.—COMMERCIAL.

"Has this fellow no feeling of his business?"—*Shakespeare.*

IT would be doing an injustice to the elder son of the family, John Peterson, if it should be supposed that he was indifferent to the cares and sorrows with which the other members of it were afflicted. He would not have thought it a great hardship himself to make a voyage to Australia and to settle there, if he, like his brother, had had no better prospects at home. But Mrs. Peterson made such a trouble of it, that John could not help feeling guilty on her account and Charley's; and every lamentation which his mother uttered seemed like a reproach levelled at himself. He felt also as if he had acted an unmanly and cowardly part in exposing his brother to perils and hardships, though he con-

sidered them to be almost wholly imaginary, while choosing for himself the less adventurous life. It was too late, however, to make any alteration now, even if he had been disposed to do so; and he could only resolve to do his utmost, when Charles should be gone away, to comfort his mother by his own kindness and attention, which was a good sign as far as he was concerned, since he had never before been in the habit of cherishing any such regard for the afflictions, still less for the weaknesses, of other people.

On the day fixed for him to enter upon his duties at Lombardy Court, John Peterson presented himself at the office, and was received by Mr. Jones, who took him into a little "sanctum," as he called it, at the back of the office, and volunteered to give him some seasonable advice.

"Your father was a great friend of mine, Mr. Peterson," he said. "He and I were the two men longest in the office—over thirty years, both of us. He was above me, of course, but that made no difference outside the Court. I shall always lament him, and am very glad to see his son here, for the honour of the house."

Mr. Jones glanced as he spoke at a large mourning ring which he wore upon his little finger as a memorial of his friend. "I suppose you will be in my office," he continued; "and if I can be of use to you in putting you in the way of things, I shall be very glad."

"Thank you," said the young man. "Is Mr. Goldie here? I must go up and see him in the first place, I suppose."

"No," said Jones; "you had better wait till he sends for you, or till you have seen Mr. Huxtable. Mr. Huxtable is very particular about that; he does not like anybody to go to Mr. Goldie except 'through him,' as he calls it."

"Huxtable! What has he to do with it?"

"He has to do with everything; and" (lowering his voice) "meddles with everything."

"You don't like him, then," said John, well pleased.

"Not after your father. Your father was a gentleman, and no better man of business ever wrote with a pen. Mr. Huxtable is clever enough, I dare say, but fidgety, and, in fact, sometimes exasperating. But I ought not to tell you this; you will have to take your orders from him, and will see very little of Mr. Goldie. By-the-by, did you ever hear anything from that insurance office?"

"No," said John, "except that there was nothing to be heard."

"Mr. Mortimer was very much put out about it, Bennett told me. Mortimer was the director who wanted to get home, and it was chiefly his doing that the policy was not completed on that unfortunate day. He brought the matter before the board, but they could do nothing. Mr. Bennett thought it probable that you would hear from him; but he has been ill lately, and does not attend so often at the board as formerly. You'll find Mr. Huxtable on the first floor. His room is just opposite Mr. Goldie's, and he generally sits with the door open. You had better go up and show yourself, and ask him what you are to do."

John Peterson ascended the stairs, and turning to the right, presented himself at Mr. Huxtable's door, which was ajar, as he had been led to expect. Mr. Huxtable was busy at the moment, and after looking up at him, went on with his writing, and took no further notice of him, so that John, standing opposite to him, had leisure to observe him. This was the man whom he had made up his mind to outwork and, in a word, to supplant; this was the rival whom he had come there to hack and hustle. He had accepted the humble position of a clerk in that house with the fixed determination to rise out of it, and that without much delay, and to become a chief person, if not *the* chief person, in the establishment. Mr. Huxtable was a middle-aged man, with a large face and a broad but receding forehead. His hair was of a pale reddish colour, his whiskers and beard being of the same hue, but much lighter; his complexion inclined more to yellow; his eyes were small, but conspicuous, nevertheless, on account of the scantiness and want of colour of the eyebrows and eyelashes. Altogether, he was a coarse-looking person, with more of cunning than of intellect in his features; and though he was quick and ready with his pen, and seemed to be at home in his employment, John Peterson felt, as he gazed at him, that he need not fear to enter the lists with him, and in his own mind set him at defiance there and then.

Mr. Huxtable, looking up after a time, became aware that he was being scrutinised, but had, of course, no conception of the thoughts which were passing through the brain of the young man who stood before him. He showed some impatience at being thus observed, and said: "Well, Mr. Peterson; that's your name, I suppose?"

"Yes, Mr. Huxtable; that's yours, is it not?"

Mr. Huxtable did not reply immediately; his face had turned just a shade paler and more serious; he was wondering where he could have met this young man before. He was sure he had seen him somewhere, but could not recall the place or the occasion, and it was not Mr. Huxtable's way to recognise old acquaintances, or to refer to past events without being sure of his ground.

"Oh, I have it," he exclaimed at length. "Did not I meet you coming out of the door of this house one day?"

"Yes," said John, scarcely repressing a smile. "Yes, Mr. Huxtable, I think you did."

"You pushed the door open violently in my face," said Huxtable. "Were you aware of it?"

"No," said John. "I came in contact with some one, I believe; I hope I did not hurt you. I will shut it after you some day," he added, mentally; "that will make it even."

"Now about business," said the manager, resuming his sharp, bustling manner. "What can you do?"

"Read, write, and so on," said John, nettled at his offhand mode of address.

"Do you understand book-keeping?"

"I can add and subtract, if that is what you mean."

"Add—subtract! any schoolboy can do that. You have been at school, I suppose?"

"Yes, and at college."

"What college?"

"St. John's, Cambridge."

"Cambridge? Ah, well, that will be of no use to you here," said Mr. Huxtable, recovering himself, having been a little taken aback.

"Will you give me my work," said John, "or shall I go to Mr. Goldie?"

"Go to Mr. Goldie! no, certainly not. It is a rule of this house that no one goes to Mr. Goldie

except through me, strictly and literally through me."

"Through you? strictly and literally? Well then, as I don't see my way to do that, perhaps you will tell me where I am to sit, and what I am to do."

Mr. Huxtable looked at him suspiciously. Was the young man chaffing him? was this new clerk, who had struck him in the face at their first meeting, doing the same thing again now metaphorically?

"I shall have to take you down," Mr. Huxtable began, angrily; but John was looking at him so quietly and seriously, and appeared to be so perfectly at his ease, that the manager hesitated.

"Yes," said John; "down where?"

"Downstairs," Mr. Huxtable replied. "Your desk is in the clerks' office below. Please to follow me."

John Peterson did as he was directed, and the manager gave him some accounts to look over and to balance.

"Let us see what you can do, and how long it will take you, and bring your work up to me when it is finished. Do you hear?"

"I hear," said John; and seating himself at once he ran over the papers with his eye, and set to work upon them instantly. He was very quick at figures, and finished his task in a much shorter time than Mr. Huxtable had expected.

"New brooms!" he said, when John entered his room. "This writing won't do, though."

"Why not?"

"It's not like a clerk's hand at all. You'll have to alter it. Take Jones as your model, and try to write like him."

"I shall not succeed," John answered; "I cannot imitate another man's handwriting."

Mr. Huxtable looked up at him suddenly; and then as quickly turned away his eyes. John Peterson could not help noticing his look of confusion, and how his hand trembled as he busied himself in turning over without any apparent object some papers which lay on the table.

"It's an awkward thing, don't you know, imitating another fellah's handwriting. Many a fellah has got into trouble by it. It's a thing I wouldn't do myself; though Jones's is copperplate and artist's proof, don't you know."

John turned and saw behind him a young man who had just entered the room, clad in an ulster so long and close-fitting that it might have been his only garment. It had a large hood hanging behind, which looked as if it had been made to carry parcels in, though it was not likely that the wearer would ever make that use of it. He stood with his hands in his pockets and his hat still upon his head; and after delivering the above speech, and nodding familiarly to Mr. Huxtable, he walked to the fire and stood with his back to it in the same attitude.

"Late again, Mr. Adolphus," said Huxtable. "I have been waiting for you."

"No! Have you, though? I didn't know I was of so much consequence."

"I'm going out," said Huxtable, "and I want you to attend to these matters," pointing to some papers, "while I am away. Mr. Peterson will stay in the room and help you."

"Will you, though?" exclaimed the gentleman addressed, turning to John. "Will you help me? It's awfully kind of you."

"It is easy enough," said Huxtable, "only you can't do it alone. These papers have to be compared, that's all. This is our new clerk, Mr. Peterson; you'll have to show him instead of his showing you."

"Well, that's the best thing I ever heard in my life," said Mr. Adolphus when Huxtable was gone. "The idea of my showing any fellah how to do anything in the way of business."

"Are you a beginner, also?" John asked.

"A ONE," was the answer.

"A 1, that's the highest rating there is," said John, "for a ship."

"I'm not a ship, only an articled pupil studying commerce. Commerce! It sounds well, don't it? I didn't choose it for myself. I didn't know what to choose; but my friends advised commerce, and so here I am. When any fellah asks me why I go into the City and what I'm doing, I answer 'Commerce,' and that's all I can tell him. If that's not A ONE, I should like to know what is."

"We had better get to work," said John Peterson, taking up the papers and looking over them.

"All right," his new friend answered, and immediately walked out of the room by a different door from that by which they both had entered it, and left John to himself.

CHAPTER XII.—ARTISTIC.

"Come, come, and sit you down; you shall not budge;
You go not till I set you up a glass
Where you may see the inmost part of you."
—*Shakespeare.*

JOHN PETERSON waited impatiently for the return of his strange companion, and presently the door was opened and another form appeared—another, yet the same. The ulster had been laid aside, and the figure which now stood before him resembled the former in nothing but the face, being attired in a fashionable suit of Tweed, with chains and lockets and a light-blue necktie.

"My name's Adolphus," he said; "what's yours?"

John told him, and asked, rather impatiently, "Are you ready to begin?"

"All right," was the answer. "There's no hurry, don't you know. Is the governor in yonder?" indicating Mr. Goldie's room.

"Yes, I believe so."

"Then I'll shut the door. I like the governor—at a distance, don't you know; but he is not genial, and he doesn't like me. I am not 'business' enough for him. Still I like him. He always makes me think of—who-d'ye-call'm, that we used to do at school? You know who I mean."

John shook his head.

"Him that wrote the choruses, you know—the choruses that we always used to skip."

"Euripides? Æschylus?"

"Yes, Æschylus. He had a bald head, don't you know, like Goldie, and he used to go mooning about in the fields, making up his plays or operas or whatever they were, with the choruses. And one day an eagle that had got hold of a tortoise which it could not crack, flew up into the air with it and dropped it plump on to poor who-d'ye-call'm's head, mistaking it for a smooth round stone. I never heard what became of the tortoise; but Æschylus did not write any more choruses after that. It was no great loss either, for nobody would ever have sung them if he had. We always skipped the choruses at school."

"Come," said John Peterson, "we really must get to work."

"I don't like work," Mr. Adolphus answered, "and I'm not paid for it."

"But I am," said John, "and I mean to like it too, if I can. I would advise you to try and do the same."

"All right; go ahead then."

After many more delays and interruptions John Peterson succeeded in persuading Mr. Adolphus to settle to the work before them. They had to compare a great many invoices with the entries in one of the books, and to mark them where correct, casting up the totals and carrying forward balances, and that was a task which presented no difficulty to either of them. But Mr. Adolphus's attention appeared to flag more than once before it was completed, and he seemed to be amusing himself or thinking about something else.

"Have you got the last entry right?" Peterson asked, observing his want of diligence.

"The last entry? Yes. I think so."

"Let me look at it. Why what is this?"

"The last entry," said Mr. Adolphus.

John took the paper handed to him. It was not an invoice, but the back of a letter, upon which was a portrait of himself drawn with a very few strokes and slightly caricatured, but with considerable spirit and faithfulness. He looked at it, at first with surprise, and then with a feeling of displeasure.

"Is this meant for me?" he asked. "What a prig you have made me!"

"Have I, though? I thought it was rather like."

It was in fact rather too much like to be agreeable to the subject of it. It gave the expression not of his features only but of his mind; and by exaggerating those characteristic marks, which only the eye of an artist to the manner born would have observed, it showed the young man to himself in a guise which he could not but acknowledge to be true, however unpleasant the conviction.

"What a horrid prig you have made of me!" he said again. "I hope I am not really like that."

"It's a little exaggerated, I admit," said Adolphus. "You never saw yourself, I dare say, except in the glass; and then of course you were looking at yourself, so you couldn't see yourself as others see you. When you look at yourself in the glass, don't you know, you make yourself up unconsciously just as you do for a photograph; there's no sentiment, or passion, or anything else of that sort in a looking-glass, don't you know; it takes you at your own price, and that's generally rather higher than anybody else's. You did not know that you were sitting for your portrait, or you would not have given me such a good chance."

"Still I didn't think I should come out like this," said John. "If this is the 'last entry,' I am afraid the office is not much to be congratulated."

"You shall do me if you like," said Adolphus.

"I couldn't if I were to try," said John. "I could have my revenge in one way, of course; I could make you hideous, but I couldn't make it true at the same time. You must be very clever with your pencil."

"It's about the only thing I can do, don't you know," Mr. Adolphus answered. "It comes natural to me somehow. But I don't dislike your face altogether; I think there are some good points about it. Now here is the last entry but one; what do you think of that?"

"Who is it? the laundress?"

"No: look at the face."

"Why it must be Huxtable, dressed up like an old woman with a broom. What does it mean?"

"He's sweeping the office out, don't you know. Huxtable has turned off two of the clerks already since he 'entered,' and another is under notice; he means to make a clean sweep of the whole establishment if he can; but I don't think he'll succeed."

"What can be his motive?" John asked.

"I don't want to attribute motives to any fellah," Mr. Adolphus answered. "It's hardly fair, don't you know."

"Here he is again," said John, turning over the leaves of the little sketch-book which Mr. Adolphus had given him. "What is he doing here?"

"Sitting in Goldie's room, in Goldie's chair, at Goldie's table; making himself at home—'Brothers' in fact; with all the tin boxes on the shelves behind him, smiling at him."

"Capital!" said John Peterson; "but what are all these flourishes on every side? and why has he got his eyes shut?"

"The flourishes? Oh, they are clouds; I can't draw clouds. I can't draw anything but figures. It's 'Huxter's dream,' don't you know; and dreams are always symbolised by clouds."

"Huxter's dream," John thought to himself. "He will be drawing Peterson's dream next, in the same style."

"I did not mean you to see that," said Adolphus. "I did not think of it when I gave you the book. It was only a fancy of my own; and, as I said before, one ought not to impute motives or intentions, don't you know. I'll tear that leaf out."

And, suiting the action to the word, he extracted the objectionable sketch from the book.

"You had better not mention it to anybody," he said.

"I won't," John Peterson answered; "I think you are quite right not to make such ideas public. But had we not better get on with our work?"

Mr. Adolphus acquiesced; and they set to again, and finished it to their mutual satisfaction.

"I'm very much obliged to you, old fellah, for helping me," said Adolphus, as they laid the papers together. "It is the first bit of work I have done since I came into this house. I know more about commerce now than I ever did before. I begin to think it possible I may like commerce, if I can do it, don't you know; I hope you and I shall always work together. But you will be in Jones's room. I like old Jones; but I'm afraid he don't like me."

"Why should he not like you?"

"He is all business, Jones is. I've got him somewhere." Opening the little note-book Mr. Adolphus showed a characteristic sketch of Mr. Jones in the costume of a Roman priest, with a censer in his hand, a wreath of pens upon his brow, and a smile of complacent reverence upon his features, offering adoration to his ledger.

"Jones's heart and soul are wrapped up in his books," said Adolphus; "he knows I don't care much for business. This is the most frightfully business house in all the City. There's a business clock facing you as you come in, which always seems to say, 'Late again, Mr. Adolphus!' I never saw such figures on any other clock, nor heard such a tick."

Mr. Adolphus was the younger son of a "good family." He was connected with the aristocracy, and was supposed, indeed, to have royal blood in his

veins; though, as he used to say, it looked like other people's when he pricked his finger. The only court with which he had any connection or acquaintance was the "court" of "Lombardy;" if all courts were like that he did not care for them—the atmosphere was not exhilarating. The clerks, with whom he was a favourite, though they never took liberties with him, spoke of him among themselves as Gustavus, or His Royal Highness; and were not a little amused at his coolness, as they called it, in breaking all the rules of the establishment in the most innocent and unconscious manner. He was on the easiest terms with everybody, Mr. Goldie included, and made no difference in his manner to any one, being uniformly genial and polite.

Among his intimates and old schoolfellows, Mr. Adolphus went by the name of Dolly, or Gussy, or Rex. He answered to either name with perfect indifference. It did not matter what anybody called him, he said, as long as they did not call him too early in the morning. He had not been brought up in habits of industry, and could not easily accommodate himself to business. His friends had sent him to Lombardy Court to learn commerce, and had paid a good premium; but there was no one to teach him, and he was not apt at picking up knowledge by himself. He took a fancy to John Peterson from the first, and thought he should like to work with him; but John's place was in the clerks' office, and his own upstairs. He would have preferred to sit with the clerks, and had proposed it to Mr. Huxtable, but it could not be allowed. The "articled" pupils, as they would have been called in a lawyer's office, when there were any, always sat in the manager's room, or in the little closet adjoining, and he must do the same. He must maintain his position above the paid clerks locally and literally, whether he did so in other ways or no. So, as a rule, he had no other company in his work but Mr. Huxtable's or his own.

While John Peterson was adjusting the invoices and other papers Mr. Huxtable returned.

He looked hastily over them, and gathered them up in his hand, and was carrying them to his own desk, when Peterson observed that he had taken up with them Mr. Adolphus's sketch—Huxter's dream—which had been inadvertently left upon the table.

"You have something there which does not belong to the subject," he said; and taking hold of the paper he tried to extricate it from the rest. But Mr. Huxtable turned away and would not relinquish it.

"It is something of yours, Mr. Adolphus," John said, significantly.

"Mine? Oh, yes! I forgot. It's private, Mr. Huxtable; private. Give it me, if you please. It's private, don't you know."

Mr. Huxtable's curiosity was excited, and he began to turn over the papers in order to get a sight of the document before returning it.

"You are not going to look at it, surely?" said Adolphus, "when I tell you it's private. Give it me directly, I beg."

"Does it concern me?" Mr. Huxtable asked. "I have a right to know that before giving it up."

Mr. Adolphus did not answer, except by again demanding it. "Does it refer to me, or to the business of this house?" Mr. Huxtable asked again, still searching for it.

"It does not belong to you, at all events; and I ask you, as a gentleman, to give it up to me at once, and without looking at it."

"Unless you answer my question," said Mr. Huxtable, "I shall decline to part with the document."

"All right," said Adolphus, snatching at the paper, which came to the front at that moment from between the invoices, and throwing it into the fire. "I did not wish to behave rudely, but I told you it was mine, and private."

Huxtable looked at him with anger and suspicion, and then fixed his eyes upon John, whose looks betrayed too plainly the satisfaction which he felt.

"You have been putting your heads together already, have you?" he said. "I won't have anything of this kind going on. I shall report this to Mr. Goldie."

"I wouldn't, if I were you," said Adolphus; "I would not say anything about it to anybody, if I were in your place. It is not the sort of thing to boast of, don't you know. But here is Mr. Goldie, if you want him."

At that moment the principal opened his door and came towards them. Mr. Huxtable did not take advantage of the opportunity. Mr. Goldie caught sight of John, and said, "Oh, Mr. Peterson, you are come, then," and smiled. The sound of the name so familiar to that house seemed to give him pleasure. But the next moment a cloud came over his face, and he passed on without another word.

After that John Peterson saw very little in office hours of Mr. Adolphus, but sometimes accompanied him part of the way home in the evening, and they were very good friends. He liked him, and would have cultivated him, at all events, it being a part of his plan to seek the friendship of all who might possibly be useful to him. John settled to his own work in the clerks' office, and Mr. Jones, who sat at a separate desk, on a kind of rostrum, near him, gave him all the direction and assistance he required, and was astonished at the quickness with which he took hold of, and even anticipated his instructions. By the time he had been at his post three or four weeks, Mr. Jones asserted that he was as good an accountant as if he had been there as many years, and took an opportunity of expressing to Mr. Goldie the high opinion he had formed of his industry and talent.

Of Mr. Goldie himself John Peterson saw very little. Their first interview had not been agreeable to either of them, and might have caused a little shyness between them. But none of the clerks had much personal communication with their chief, except Mr. Jones, who went up to him occasionally with his books. If they met Mr. Goldie on the stairs, they stood aside to let him pass; but he did not usually appear to notice them, and never spoke to them, except when, in Mr. Huxtable's absence, he had occasion to give some special direction as to their work, or, upon that gentleman's report, to utter a remonstrance or a reprimand, which, from one cause or other, happened not unfrequently during the first few weeks of the new manager's *régime*.

"Huxter wants to get rid of them all," said Mr. Adolphus to himself one day, after there had been a fresh disturbance about some trifling matter; "and if he goes on like this he will soon succeed. He can't get rid of me, of course. I should not be surprised if I were to find myself quite alone in the counting-house some day with all the work to do. It would be a bad look out for me, and very bad indeed for commerce."

SUN-SPOTS.

BY E. DUNKIN, F.R.S., VICE-PRESIDENT OF THE ROYAL ASTRONOMICAL SOCIETY.

READERS of the public journals must have noticed, during the last few years, frequent references to the probable connection between the periodicity of spots on the sun and seasons of plenty and scarcity, and with many other terrestrial occurrences which seem to return in cycles of about eleven years. These apparent coincidences have had the effect of directing the attention of astronomers and physicists to this important subject of research.

But some may ask, What are sun-spots? To give a proper answer to this question, we ought in a few words to consider the appearance of the external and visible surface of the sun. When viewed under favourable circumstances at the time of the maximum number of sun-spots, the surface is covered with different kinds of markings. These may be distinguished under the names of ordinary sun-spots, or *maculæ*, most of which are surrounded with an irregular border called the penumbra; strongly-marked luminous streaks, or *faculæ*, generally in the neighbourhood of great spots or the edge of the sun; and a granular appearance of the whole disk, for which many names have been suggested. Sir John Herschel remarks:—"There is nothing which represents so faithfully this appearance as the slow subsidence of some flocculent chemical precipitates in a transparent fluid, when viewed perpendicularly from above: so faithfully, indeed, that it is hardly possible not to be impressed with the idea of a luminous medium intermixed, but not confounded, with a transparent and non-luminous atmosphere, either floating as clouds in our air, or pervading it in vast sheets and columns like flame, or the streamers of our northern lights, directed in lines perpendicular to the surface." Some of these peculiar phenomena, which have received from Mr. Nasmyth the name of willow-leaves, are very visible in the neighbourhood of sun-spots, and they seem to lie about irregularly, occasionally bridging over a portion of a spot, thus connecting the opposite sides. The telescopic appearance of the sun is, therefore, not that of a mass of irregular glowing matter, but it exhibits a number of individualities, the separate constitution of which is explained by spectrum analysis. The spectroscope has been the means of advancing our knowledge of the composition of the sun and other heavenly bodies in a most marvellous manner, especially since the great discovery announced in 1860 by the German physicists, Kirchhoff and Bunsen, of the coincidences of the absorption lines in the solar spectrum with those contained in the spectra of incandescent metallic vapours. What is now an every-day observation at our principal observatories, could formerly only be imperfectly obtained during the few minutes of totality in a solar eclipse. This interval is always found to be too short, for the observations on these occasions are necessarily made in a hurry, as the writer well remembers at Christiania in 1851; and though most valuable results have been generally obtained, the observers as a rule always see the sun reappear long before they have completed what they had intended to do, knowing at the time that they may never have another opportunity of witnessing a total eclipse of the sun. In happy contrast to this, the spectroscopic observer of the present day is able to analyse at his leisure a point of light proceeding from any portion of the solar disk, and to compare it directly with that of any terrestrial element required in his research.

The form and dimensions of sun-spots vary considerably. Sometimes a small black circular spot, almost planetary in its appearance and devoid of penumbra, is seen without alteration from day to day, either in form or position, except from what is due to the rotation of the sun. Some observers have thought these might be real planets projected on the solar disk. But nearly all the principal spots are irregular in form, and surrounded by a fringe of a lighter shade, more or less perfect. Indeed, the contour of a spot of this kind is continually changing, and though the same spot is frequently recognised on its reappearance at the proper time at the eastern border of the sun, it bears visible evidence of having passed through great vicissitudes since its disappearance a fortnight previously. Schwabe, in 1840, observed a group return eight times, while in 1779 a most remarkable spot remained six months on the surface before it was finally absorbed.

The origin of sun-spots has been the subject of some difference of opinion. It is only necessary for us to remark that the nucleus appears lower than the surrounding penumbra, and that both are beneath the exterior surface of the photosphere. That they are cavities produced by enormous chemical outbursts most astronomers are agreed. This terrific local action in the solar photosphere has no parallel with any corresponding terrestrial phenomena, even with the greatest earthquake or atmospheric convulsion which has ever occurred on the face of the earth. Observation has shown that, as a result of such a sudden outburst, a downrush of the surrounding vapours at once takes place into the newly-formed cavity, filling up gradually the vacuum caused by the projection of matter beyond the surface of the photosphere. Our distance from the sun does not always allow us to witness these great eruptions, though many have been seen in full action, nor to note the birth of a spot. Sir John Herschel's explanation of their growth is worth quoting. "The origin of a spot," he says, "when it can be observed, is usually traceable to some of those minute *pores*, or dots, which *stipple* the sun's surface, and which begin to increase, to assume an *umbral* blackness, and acquire a visible and, at first, very irregular and changeable shape. It is not till it has attained some measurable size that a penumbra begins to be formed—a circumstance strongly favouring the origination of the spot in a disturbance from below upward; *vice versâ*, as the spots decay they become bridged across, the umbræ divide, diminish in size, and close up, leaving the penumbræ, which, by degrees, also contract and disappear. The evanescence of a spot is usually more gradual than its formation." Mr. Dawes has made some interesting notes on a very remarkable spot which appeared in January, 1852. On this occasion the nucleus was seen as an intensely black centre, surrounded by the ordinary spot, and then again by the penumbra. A small promontory of the darker portion was very nearly separated from the rest by a wisp of the penumbra. Viewed from day to day, this projection was noticed to have uniformly changed its position, till it was found that the whole spot had rotated round the small black nucleus; its outline

having varied but little in form, though so greatly in position. Mr. Dawes remarked that it appeared as if some prodigious ascending force of a whirlwind character, in bursting through the cloudy stratum, and the higher and luminous strata, had given to the whole a movement resembling its own.

Several sun-spots occasionally appear near each other, some with penumbræ, others simply detached irregular fragments, but all remaining for the most part in the same relative position, though their forms may vary considerably. Groups of this kind have often been delineated by different observers. Capocci and Pastorff, in 1826 and 1828, have recorded some very remarkable illustrative spots; one by the latter was 75,000 miles in diameter. Schwabe, however, on the day of the solar eclipse of March 15, 1858, noted one having a breadth from west to east of 106,000 miles, while on September 30 of the same year he observed an enormous spot, extending from west to east 142,000 miles. Such spots as these may be easily viewed with the naked eye protected by a coloured glass.

Sun-spots are confined to a limited area on each side of the solar equator, generally within 35°, though occasional isolated spots have been noticed at a greater distance. They mostly appear in two moderately broad zones between 8° and 20° from the equator, while on and near the equator itself spots are seldom seen. The number of days in a year on which they are visible is very variable, according as it is near the maximum or minimum frequency. During the former, Dr. Wolf states that he never examined the sun in 1859 and 1860, and again in 1870-72, without seeing a sun-spot, whereas in 1856 there were 256 days without solar spots, and in 1867 219 days.

Ordinarily, the examination of a large sun-spot is a very attractive kind of observation, and any one only slightly acquainted with astronomy may derive a peculiar pleasure from a daily, or it may be hourly, scrutiny of its features, from the moment when it is first seen near the eastern edge of the sun to its disappearance in about a fortnight at the western edge. This pleasure is much enhanced when he knows that his records have a scientific value, and may at some future time help to provide the means for deciding some of the disputed questions relating to the physical constitution of the sun, or how much we may attribute our seasons of prosperity and adversity to the periodical presence or absence of sun-spots. Independently of its scientific value, the careful scrutiny of a large sun-spot is a very favourite subject of study to most amateur astronomers, for they can admire the varying form of the nucleus and its penumbra, as well as make the comparatively dry record of its relative position with respect to the centre of the sun, or to other spots. A large telescope is not required to view the occasional formation and dissipation of spots; and if an observer is possessed with the power of delineating what he sees, he is brought, as it were, face to face with some of the visible effects of the antagonistic chemical elements buried within the photosphere of the sun.

The daily registration of sun-spots has been undertaken by many observers. The principal English astronomers who have laboured in this work are Professor Chevallier, Sir John Herschel, Mr. Carrington, and the Rev. F. Howlett. They have made a very large number of records of eye observations, which are contained in several volumes now in the possession of the Royal Astronomical Society. These drawings were made either by viewing the sun through a telescope of low power, the eye being protected by a coloured glass placed before the eyepiece, or by projecting the telescopic image of the sun on a screen formed of paper. By these means the number and relative positions of the spots have been recorded by estimation on a diagram of the solar disk previously prepared. At the present time, however, and for some years past, solar diagrams are daily taken by the aid of photography, and thus not only are the exact number and positions of the spots registered, but the details of their form, as well as of their surrounding penumbra, are occasionally shown with great clearness. The daily record by this instantaneous method has been in operation, first at the Kew Observatory, and afterwards at the Royal Observatory, where it is now incorporated into the usual routine work of the establishment. The Kew photographs were taken by the De La Rue photoheliograph, as were also the early Greenwich photographs. The instrument now employed for this purpose is one of the photoheliographs constructed by Dallmeyer for the late Transit of Venus Expedition.

Herr Schwabe, of Dessau, and Dr. R. Wolf, of Zurich, are two of the most distinguished foreign astronomers who have kept a continuous record of the amount of sun-spots from year to year. Schwabe commenced in 1826, and continued his examination of the sun's face till 1868; while Wolf's records extend from 1849 to the present time. It is important to note that the result of Schwabe's observations was to establish with a great degree of probability, almost amounting to certainty, that the sun-spots pass through the phases of maximum and minimum frequency, and that this periodicity is in accordance with that observed in the diurnal variation of the magnetic declination. This remarkable coincidence is now proved beyond question, and we may safely assume that the amount of sun-spots is a certain index to the amount of daily change of the magnetic force in the direction of the meridian. The average sun-spot maxima occur at intervals of 11·11 years, but Dr. Wolf has found, from an examination of a very extensive series of manuscript and printed records, dating from 1610 to the present time, that this mean interval is liable to an average variation of about two years.

Of late years, various terrestrial phenomena which are periodic in their nature have been likewise supposed to be directly influenced by the varying amount of solar energy, as indicated by the prevalence or absence of sun-spots; but we must be cautious in forming conclusions. We do not say that the effects of the periodical commotions, which are known to take place in the sun, are not felt on the earth. In all probability they have a very large influence on the meteorological elements of our atmosphere, exhibited from time to time by periods of rain and drought, and their attendant evils. Admitting all this, we must remember that continuous observations of the solar face, in comparison with meteorological phenomena, are far too scanty at present for any person, however skilled he may be, to build up a theory without trusting in a very great measure on speculation. For example, we can, therefore, place very little reliance on the few published facts which seem to show some apparent connection between the periodicity of sun-spots and famines, for the simple reason that there are not sufficient authoritative data

in existence to deduce any satisfactory law which could be depended upon. When we therefore see it announced that there is a possible connection between the periodicity of sun-spots and the late great famine in Southern India; with some of our recent rainy seasons; and more recently still, with the periodical variation of wrecks at sea, we know how rash and hasty must be any conclusions on the subject. In truth, the question must remain somewhat in abeyance for some years to come, till we have a longer period of observations of sun-spots, and till our knowledge of the constitution of the solar photosphere is advanced in proportion, as well as additional statistical information on the various subjects of inquiry. Till this is accomplished, we fear that it will be premature to speak with certainty of the direct influence of solar heat, as determined by the variability of sun-spots, on famines, inundations, the number of shipwrecks, and so on. We ought probably to look for more local causes than sun-spots to account for some of the calamities here mentioned. It is a noteworthy fact, that while, in 1877, Southern India was pining for rain, the inhabitants of Burmah were suffering from the effects of extensive inundations.

It is a remarkable circumstance that in various phases of life a periodic interval of prosperity or adversity of about ten or eleven years has been noticed to occur, even in commercial enterprises. It would require some considerable amount of imagination to connect them with sun-spots, that is to say, with the commotions going on in the solar envelope. Still, the connection may not be altogether visionary, since commerce may share the effects produced on natural phenomena by an excess or defect of solar energy. For instance, some of our principal astronomers have tabulated side by side the corresponding phenomena of sun-spot variation and the price of corn, showing that there is a marked periodicity, though not of so decided a character as that of the daily variation of the magnetic declination. All this shows that much information must be gained by continuing the system of solar observation now in progress, and by encouraging similar observations in different parts of the globe. In effect, what is required is that stations should be selected in Europe, India, North and South America, the Cape, and Australia, where a uniform system of observation could be carried out, and where sun-pictures could be made from day to day, for many decades in succession.

But though there is much positive evidence of a direct connection between periodical terrestrial phenomena and the life-giving heat received from the sun, as indicated by the number of sun-spots, it must not be taken for granted that the spots in themselves have any inherent property in their nature to affect a globe at a distance of ninety-three millions of miles. Their presence or absence merely shows that there is more or less activity in the heat-generating action of the photosphere; and therefore spots may be compared to the hands of a clock which correctly indicate the result of certain movements of wheels which are hid from view. Thus, in a similar manner, the periodic frequency of spots merely exhibits to the eye some of the effects of corresponding solar action, which appear to us in the form of markings of various kinds on the sun's face, including those dark cavities which we call sun-spots. It is natural and correct, therefore, to assume that, when their number is at the maximum, the photosphere is in a very turbulent condition; that solar heat is much more freely generated; and that its influence on the members of the solar system is proportionately increased. We can hardly imagine the enormous amount of solar force required to drive such violent outbursts of incandescent vapour which the spectroscope has revealed to us, to a distance of two hundred thousand miles from the sun's surface.

It may be well to repeat once more that the periodicity of sun-spots, and the corresponding periodicity of the diurnal variation of the magnetic declination, may be safely accepted as proved. Of the supposed connection of the periodic solar phenomena with famines, excess or deficiency of rainfall, shipwrecks, commercial panics, and so forth, we believe the time *may* come when each and all of these calamities may be traced to the commotions within the solar photosphere. But it is advisable at present not to be too sanguine on this point. Even Dr. Hunter, who drew the attention of the public to the observed periodical amount of rainfall in Madras, and suggested its coincidence with that of sun-spots, is anxious that his conclusions should not be adopted without further investigation. He has stated that "it would be a misfortune at this early stage of the inquiry, if wider inductions were drawn from it than are justified by the evidence which it brings forward." He has since extended his inquiries into the amount of rainfall in North America, and he has found that the result is against the existence of a common periodicity in the sun-spots and the American rainfall within the temperate zone.

Mr. H. F. Blanford, of the Meteorological Office, Calcutta, also speaks doubtfully as to the supposed connection of the periodicity of sun-spots and the late Indian famines. He says:—"The law of famine recurrence, even in Southern India, is by no means so simple as one might be apt to infer from much that has been lately written on the subject; and it becomes still more complicated if we include Northern India, which is a region of equal importance from an administrative point of view. The worst famine of this century was that of 1837-38, 1837 being a year of *maximum* sun-spots, the highest in this century previous to 1870; and 1870 was preceded by the famine of Rajpootana and the North-West Provinces in 1868-69, and followed two years later by great scarcity in Khandeish (in the Bombay Presidency), and again two years later by that of Behar and the neighbouring districts of the North-West Provinces. The memorable famine in 1861, in the Upper North-West Provinces, also followed immediately on a year of *maximum* sun-spots. As far as the evidence yet put forward can be said to point to any law of periodicity, it is this: that severe famines seem to tend to occur more frequently in Southern India about the time of *minimum* sun-spots, and in Northern India about that of *maximum* sun-spots; but the evidence is very imperfect, and requires thorough examination. It is unquestionable that a great deficiency of rainfall in one region is in many cases attended by a great excess elsewhere. The rains which were withheld from Madras at the close of 1876 were discharged over the Bay of Bengal, producing two severe cyclones; and while the North-West Provinces during the present summer (1877) have suffered almost an entire loss of the crops of that season from continued drought, those of Pegu have been drowned and washed away by the extraordinary floods of the Irawaddy." It must be borne in mind that in 1876 and 1877 there was a great deficiency in the number of sun-spots.

LEFT IN CHARGE.

From the Picture by Joseph Clark, exhibited at the Royal Academy.

PRACTICAL SOCIAL SCIENCE.

BY THE REV. HARRY JONES, M.A.

II.—DRESS.

THE objects for which dress is worn are warmth, decency, and ornament. These two last, however, may be classed together, since they both imply a desire on the part of the wearer to present a more becoming appearance than bare nature provides. Partly indeed this desire accounts for the earliest use of dress, and is the most conscious cause of its being to some extent used everywhere, always, and by all. People are apt to think more of appearance than utility. On no other ground can we account for the paint, beads, and feathers of the savage. These mark the rudest phase of dress, and it is worthy of notice, however uncomplimentary the suggested thoughts may be, that the latest developments of so called civilisation exhibit the same appetite and taste, though the items of ornament have been improved by art and mechanical skill. The dye of the robe, the flash of the cut and polished jewel, the delicacy of the tint produced by the cosmetic, are only refinements of the first uncivilised expedients to attract if not to please the eye; and those who plead for the equality of the sexes might find, perhaps, some significant food for reflection in the fact that women have clung most tenaciously to the paint and feathers of our earliest precursors. The progress of Western civilisation, especially that marked by the use of the English tongue, has been accompanied by a silent discarding of ornament on the part of men. Special reasons may be assigned for the use of colour in military dress, but civilians, who would be at liberty to adorn themselves gorgeously if they chose, have by tacit and common consent adopted the soberest of hues for their dress when they wear anything besides black and grey. A gentleman will never risk his character for good taste by appearing publicly in a gaudy suit, whatever his dressing-gown may be. Possibly he clothes his footmen in staring motley, but this is the mark of the lowest menial position. An upper servant will not so array himself. In Europe and America it is reserved for ladies to dress brilliantly; but whether this is a mark of the really highest civilisation and refinement may be fairly questioned.

However, these reflections may not seem to concern the proper subject of this little paper, and I will make only one or two remarks about fashion before I go on to say a word concerning the sanitary aspect of clothes. High heels are not only ugly to the sensible eye but mischievous to the sensitive foot. They distort that wonderful piece of living mechanism; they not only make it difficult for the wearer to walk when she wears them—for women and not men are thus silly—but they are likely to leave the foot permanently injured when the foolish fashion has passed. They produce deformity, in the shape of bunions and corns, which no after-shoeing can remedy or disguise.

I will not do more than glance at the custom of excessively tight lacing. It has been long protested against as spoiling the figure and hindering the play of the great internal organs of life. But perhaps all women do not know that its tendency is to make the nose red, and a red nose is no addition to female charms. As to trains, I do not know that they do much actual harm. They help to sweep the floor and sometimes the street, but they do not do it so well as the brush of the housemaid and the broom of the scavenger. Besides, if used out of doors, they bring much undesirable dirt back with them. I wonder how the present fashion in gloves came to be started. I saw in a window the other day, "Gloves with from two to twenty buttons." Now, as most people have two arms, it may be asked, most appropriately, in the name of patience, why women should gratuitously plague themselves with the fastening and unfastening of thirty-eight more buttons than have been found necessary for years. Certainly it provides something which is not mischief "for idle hands to do," and that is about all that can be said for the fashion.

Leaving the ladies for a minute I remark on the ridiculous rage for "Ulsters" which infects many young men. These garments are most comfortable on a cold railway journey, or in driving an open vehicle during wintry weather, but why any member of the sex which is not condemned to wear petticoats should walk the streets in a garment which encumbers the legs and catches every splash of mud from the heels I am at a loss to perceive, unless it hides the shabby suit which is worn beneath. Its wearer must often be most unwholesomely warm while walking, and chilled when this huge heavy wrap is laid aside and hung up on the peg of a draughty office. Many of the youths who thus suffocate themselves out of doors look like would-be fashionable clerks.

One chief object of clothing is to keep up the proper heat of the body and hinder its suffering from sudden changes of temperature. White is best in hot sun, black the worst colour. A great authority, the late lamented Dr. Parkes, in noticing the excellence of wool as a material for dress over cotton and linen, remarks: "During perspiration, the evaporation from the surface of the body is necessary to reduce the heat which is generated by exercise. When the exercise is finished, the evaporation still goes on, and to such an extent as to chill the frame. When dry woollen clothing is put on after exertion, the vapour from the surface of the body is condensed on the wool, and gives out again the large amount of heat which had become latent when the water was vaporised. Therefore, a woollen covering, from this cause alone, at once feels warm when used during sweating. In the case of cotton and linen, the perspiration passes through them, and evaporates from the external surface without condensation; the loss of heat then continues. These facts make it plain why dry woollen clothes are so useful *after* exertion. In addition to this, the texture of wool is warmer, from its bad conducting power, and it is less easily penetrated by cold winds." The upshot of the advice would seem to be that, though flannel is warmer

during exercise than cotton and linen, it had best, for continuous use, be worn next the skin; but that if the wearer be able to change his under garments after exertion, he had better shift from cotton to flannel than from flannel to cotton or linen. This is a very important sanitary consideration, often neglected.

Another object of clothing is to keep off external wet. This of course may be done most effectually by india-rubber waterproof garments, but any one who has taken exercise in these knows that they soon become wet inside; this indicates the mischief they do by condensing and retaining the perspiration. Cab-drivers who sit still, and policemen who either stand or walk slowly on their beats, may be well protected by an oilskin *cape*, which acts like a roof and sheds off the rain as it falls, but no one should be tempted by the extreme lightness of some waterproof clothes to wear them during exertion. India-rubber coats are so harmful to those who take brisk exercise that London postmen are not allowed to use them.

It is better to wear an outer woollen garment of close texture, although it may become heavier with wet, and take some time to dry. I often wonder, however, why English working men do not appreciate the comfort and protection of umbrellas. They are much used by peasants on the continent of Europe, while here mechanics can often be seen walking to their business in a soaking rain which must keep them damp all day, even though they may work under shelter, or returning from a covered workshop to carry home wet clothes on their backs, while a large umbrella, however shabby, would have kept them comparatively dry. I may here remark parenthetically that an umbrella with a crooked handle may be hung inside the coat sleeve, and so kept from being in the way when the hands are wanted to be free. This hint might be found useful to many of my readers, though of course it could not be adopted during active work.

In respect to the clothes worn by artisans, which the umbrella has led us to notice, it seems strange that an intelligent working class should not take a leaf out of the wardrobe of their continental brethren, and make more use of the blouse. It is easy, cheap, and by no means unbecoming, as their common use by artists may prove. Our mechanics, however, hardly dress so well as the rest of their class in Europe. This comes of course from their mostly wearing on holidays clothes which, though not made of dear materials, are cut according to the prevailing fashion. Thus, when these come into daily use, their wearers look sometimes needlessly mean. I cannot help thinking that it would prove to be both economical and tasty if they had somewhat more serviceable garments for leisure days or grander occasions, and took a hint from foreigners as to the working dress. The best coat would last longer, and the week-day suit would not be such a stained and scrubby-looking affair as it often is. I am far from thinking that the appearance of dress is a matter of small concern even when dirty work has to be done. The apparel not only oft proclaims the man, but a man who, however busily and honestly employed, is conscious of wearing clothes which are strikingly shabby, is apt to contract an indifference to rents and smears, which is not altogether without an effect upon his estimate of what he is becoming, and therefore upon his character and that of his household. This taint of slovenliness is avoided by the use of such a working garment as a blouse, which may be washed, and looks infinitely better than the greasy spotted suit of clothes which, though cheap, had an air of smartness or fashion when new, but in its later aspect suggests personal decadence.

A word about shoes. They, even the cheapest sort, are professedly made for the right and left feet, but are mostly so straight as to distort the foot. They are not turned in enough, and thus the great toe, which should be kept in a line with the inside of the foot in order to do its work properly, is wrenched aside and often cumbered with a protuberance which is not merely unseemly, but may seriously impair the walking power of the owner. He is sometimes thus needlessly crippled, and must always walk with less ease to himself when his foot is not allowed its proper shape and play. In regard to the material of shoes, and in the face of the maxim that there is nothing like leather, it may well be questioned whether wood might not be more used. The sabot is clumsy, though cheap, durable, and dry. But I am sure we might have an article made of leather and wood that would lessen the great expense at which a household is shod. I often think, however, in respect to children, that poor parents have sometimes an unnecessary dislike to see them with bare feet. Certainly in summer much cost in the provision of shoes for a family might be avoided by the very simple expedient of letting the little folks run about without them. Their feet would thus be allowed to grow aright, and the sole would soon harden itself to the ground. Of course the feet should be washed before going to bed, but shoes are often as needless as gloves, and, were it not for the sentiment of the thing, might frequently be dispensed with without any harm to the child, and certainly with a considerable saving to the pocket of its parent. Our Scotch friends are wise in this matter, for with divers of them that phase of economy which we are considering has become a fashion, and no one in many parts of Scotland necessarily attaches a sense of degradation to the sight of boys and girls running about bare-footed. Thus in summer time the expense not only of shoes but of stockings is avoided. While on the dress of children, I may remark that nothing can be more absurd than to leave their legs bare in the bitterest weather. People who can afford to equip their children warmly often turn them out in a biting east wind, with their bodies and feet well protected, but their poor little legs left to grow blue with cold. Brought out of a warm room, no wonder that they wrinkle up their small faces and cry with pain.

Young girls, moreover, are frequently so dressed or trussed up as to have no free play. I noticed once, when a handful of sweets was scattered for some professedly well-dressed children to scramble for on the floor, that the boys stooped easily to pick them up, while the girls went down upon their knees to do so. The clothes of the girls in many well-to-do families are much too tight. This tightness cramps growth and lays the foundation of bodily mischief. Let mothers believe that Mother Nature cannot be defied in the dressing of their children without avenging herself, and see that, whatever they wear, their clothes shall be loose. Regard to this is a very practical part of social science. We have learnt to condemn or ridicule the tight swaddling of infants which is practised by some savage or uncivilised peoples, but we sometimes retain the vice of the custom in the case of children who have passed out of infancy

and arrived at the very age in which they most want to run and romp about. This restlessness, this tendency to wriggle and fidget, is one of the evidences of growth, and in order that growth may be healthy, the child wants the free play not only of its limbs, but of its trunk. But while the clothing of boys generally permits this, girls are sometimes put into what is little better than a strait waistcoat, which thwarts the wholesome instinct of nature, and early in life begins to check their fair stature and shape.

It would be curious, if it were possible, to learn what regulates the change of fashion, especially in the dress of women. I am afraid the day has not yet come in which this is principally determined by sanitary considerations. Practical social science seems to be powerless when some abstruse and undefinable influence sways the choice of clothes and the equipment of the head. Certainly bonnets which, not so long ago, were attached to the hinder part of a lump of hair, and left the head itself unprotected, were likely enough to produce, and in many instances did bring about, neuralgic affections. Ladies sat in a warm drawing-room, and then went out for an "airing," perhaps in an open carriage and a biting wind. Well wrapped up in other respects, with shoulders heavily covered, and hands in muff, they went out into the cold virtually bareheaded. I am glad to see that this unscientific proceeding has happily now been somewhat mitigated by fashion, though fashion itself cannot be thanked as the motive of such a sensible change. My fair readers would, moreover, be at a loss to say why the lower half of their garments has lately been made like the case of an old clock instead of a cask. The latter shape may certainly have been found cumbersome in some respects, but no common-sense principle seems to have ruled the alteration, for the only advantage it had—that of facility in walking on level ground—has been wholly discarded for a clinging tightness which must impede motion, and which, if the wearer be, let us say, "podgy," can hardly be counted as becoming, however fashionably dressed she may know herself to be. I am afraid that neither true principles of ornamental art nor considerations of utility have yet been accepted as determining the shape of a woman's dress, and that, hitherto, poor practical social science is impotent in the face of unwise and whimsical fashion, whose modes and motives are simply inscrutable. Bloomerism, which had theory to commend it, especially in a nation where, however they may be hampered in their movements, ladies happily persist in taking walking exercise, has not had a chance, but has been ridiculed and apparently scouted quite off the field. Women may copy men's fashions in coats and hats, but there the process of imitation stops, though if a fit of fashion were to encourage its descent or continuance, the result would probably be admired as becoming, as well as convenient and comfortable.

But I must have done with these considerations about dress, strictly so called; the subject is a large one. I would only plead, in leaving it after these few remarks, for a little more moral courage in looking for and following the why and the wherefore of clothes. Let people believe that science has really much to do with them in a most practical sense, since not only the comfort, but the health of every one is concerned in the shape and texture of what he or she wears.

I must, however, add a word about bedding, which means the dress worn during half our lives. In some respects we seem to be wiser while asleep than awake, since of late years the equipment for the night has exhibited several changes for the better. The nightcap has, *e.g.*, been discarded. It is now needless to ask why men, especially, who wore nothing on their heads while indoors during the day, should have put a warm covering on them during the night, since the custom is discontinued. Feather beds, surrounded with curtains, have also fallen into disuse. The former, I believe, are still widely used by those of our working population who can afford them, and no doubt they give a marked sense of ease when a weary body first lays itself down. Solomon says that the sleep of a labouring man is sweet, whether he eat much or little. And we might add that the enveloping closeness of a feather bed is least likely to be felt by and harm a labourer wearied with exertion, but it certainly tends to heat the body unduly, and make the ordinary sleeper restless before the morning dawns. The use of eider-down quilts during winter only, indicates that people have found out the inexpediency of sleeping on a feather bed throughout the year. If such extremely warm materials as feathers are employed at all, they should be used not under the body, leaving the upper half comparatively chilled, but over it, in the shape of a flexible quilt. Thus, in very cold weather, not only is the whole of the person warmed, but a change of temperature can be readily corrected. The old feather bed should be placed under the mattress. The surrounding of the whole bed with curtains has now been wisely dropped out of fashion, and the canopy which was, I suppose, intended to prevent floating motes from falling upon the sleeper, has been perceived to be rather a receptacle for dust, which not only made the air of the bedroom smell close and stuffy, but provided a store of it for every draught to blow about the apartment. In respect, generally, to the provision of beds, I cannot help thinking that much more use might be made of the hammock, especially for boys. They are cleanly, and occupy small space, in or out of use. Moreover, thus each boy might sleep separately. For several reasons besides that of economy in room and cost, hammocks might be slung with advantage in a house as well as in a ship. As to linen sheets, though they are supposed to be a sign of luxury, many who use them might perceive one application of practical science in their replacement by calico during very cold weather. Most pillows, moreover, are not scientifically shaped. If made narrower, they would far better serve their purpose of upholding the head, instead of tending to slip it down into the bedclothes. They are generally so large as not to fit at all into the hollow of the neck; and if they are made with fringes, so tickle a light sleeper as to wake him half-a-dozen times during the night.

I must now have done with these few last words on what is practically the clothing of a whole people during one-half of their existence, and, in concluding, not only plead that something deeper than fashion ought to rule the dress of sensible men and women, but beg them to believe that, without eccentricity, they may enjoy much additional comfort, and improve the health of themselves and their families, by the exercise of real but simple science in the choice of the clothes which they wear.*

* The reader who takes interest in the subject will find a series of papers, entitled "The Natural History of Dress," in the "Leisure Hour" volume for 1870. See also papers, in 1867, pp. 21 and 75, on taste, comfort, and convenience in female dress.

THE PILOT WHALE, AND HOW WE TOOK A CAST OF ONE.

BY HENRY LEE, F.L.S., F.G.S., ETC.

A PARAGRAPH appeared in the "Times" of Tuesday, April 23rd, 1867, which conveyed an announcement that a school of Bottle-nosed Whales had been seen in the Frith of Forth, and that the majority of them had been captured. Mr. Gerrard, jun., son of the Articulator to the British Museum, immediately started for Edinburgh to purchase some of them, with a view to the preparation of their skeletons; and by his kindness and the good offices of Mr. Robert Chambers, the well-known publisher, an arrangement was made that one should be sent to Mr. Frank Buckland, that he might carry out a long-cherished wish to make a plaster-cast of a whale for his museum, then at the Horticultural Gardens. He kindly gave me an earnest invitation to assist in the operation, and on Friday, the 26th, we learned by telegram that a whale had been put on a railway truck at Edinburgh, and was on its way to London. Of course I was ready, as usual, to join in the work, as well as the fun, that generally accompanied the casting of a big "fish" by a corps of amateur plasterers under the direction of my enthusiastic and humorous friend; so I looked out an old suit of clothes that had done similar duty before, and "waited for orders."

As the whale was much too large to be cast in the little front kitchen in Albany Street where so much good work has been done, Mr. Buckland obtained leave from Dr. Murie, then Prosector to the Zoological Society, to make use of the convenient dissecting-room at the Gardens in the Regent's Park, and early on the Saturday morning (April 27th) the whale was there deposited. It was a specimen of the Caaing, or Pilot Whale, of whose appearance and habits I shall have more to say presently. Its length was eleven feet six inches, its girth seven feet six inches, and its weight, according to the railway bill, one ton.

In taking a cast of this kind, the first thing to be done, after placing the subject in the best position, is to brush it lightly over with a thin coating of oil, to prevent the plaster mould adhering to it. This process having been duly attended to, all the buckets, wash-tubs, and earthen pans in the place were put in requisition for the mixing of the plaster.

Amongst those who took part in this work were Mr. Spencer W. Walpole, Her Majesty's Inspector of Fisheries; Mr. Charles Hambro, M.P. for Dorset; Mr. George Rooper, author of "Flood, Field, and Forest;" Mr. Moore, Mr. Buckland's secretary; Neville, his factotum at the museum; and John, his page-boy. And an amusing sight it was to see all of us up to our eyes and elbows in plaster, fishing up the nubbly lumps from the bottom of the various vessels, crumbling them in our hands to prevent their making rough particles in the cast, and stirring away to reduce the mixture to an even consistency, like so many cooks over basins of arrowroot. But, as one of our comrades afterwards said, "the life of the whole, the mainspring, was ubiquitous little John the 'Buttons.' It was 'Figaro here, Figaro there!' 'John, bring a tub of water—John, mix some plaster—John, some oil—John, some paint—John, some beer—John, put your knee under his fin—John, put your thumb in his eye—John, put your head under his tail—John, do this—John, do that—John, what a lazy young dog you are!' All honour to John!" Mr. Ernest Griset, the well-known artist, visited us during the afternoon, and took a sketch of the group, and on the 25th of May (the Derby Day of 1867), a half-page picture of our proceedings, with recognisable portraits of the principal operators, appeared in "Punch," with the title, "Dissecting Room, Zoological Gardens.—Scientific Celebrities taking the Cast of a Whale."

The quantity of plaster required was surprising; and notwithstanding that so many of us were working with a will, hour after hour passed away before the great carcass was covered up to and over the dorsal fin; and then we had to remove the mould from it. What happened next I must tell in Mr. Buckland's own words. "The very first piece showed me something was wrong; alas! the plaster was all cracking like unsafe ice; we therefore had to begin all over again and put another coat right over it, so that when the mould was ultimately taken off, it was the thickness of the armour-plating of an ironclad. This done, we got the head and sides off right enough, but when attempting to turn over the largest portion of the mould, about nine feet long, one side, without the least warning, gave way in the most aggravating manner, and crumbled like a piece of piecrust. This was the result of the tradesman from whom I had the plaster being cruel enough to supply me with a very inferior kind of plaster, which he must have been well aware was good for nothing, and although he knew I had most particular work to do. Luckily, the side broke in pretty large pieces, so we managed with difficulty and much contriving to put them together again. All this took a long time, but I was determined to finish the whale that night, as I did not know when I should ever have time to touch it again." It was a provoking and disheartening *contretemps*, but, to quote our colleague already referred to, "I shall long bear in mind Mr. Buckland's placid, but self-reliant smile, as he quietly remarked, on seeing the huge cast heave, crack, and resolve itself into something like its pristine elements, 'We've got to do that all over again!' And done over again it was, and those who see the effigy of the huge beast, I think, will, to some extent, realise the persevering industry and the manual skill to which it owes its existence. The work was, of its kind, a stupendous work; I question whether any dozen of those lanky-haired, dark-eyed, earringed savages who cry 'e-e-mages' about our streets would ever have attempted it."

Having renewed and repaired the mould, we rested for a few minutes, and then set to work to make the cast from it. It was not till five minutes before midnight that this was finished. All our friends, having other appointments, had been obliged to leave us some hours before the work was completed, so that the latter part of it devolved upon Mr. Buckland, Mr. Moore, Neville, John, and myself. And heartily tired we all were after thirteen hours of zealous labour, chiefly in a stooping posture, and having been with-

out any refreshment for five hours, owing to our having been too busy to remember that the restaurant in the Gardens closed at seven o'clock.

As the whale had been dead nearly a week, and was somewhat distended with gas, Dr. Murie feared that it might burst during the night, or on the Sunday, and obtained from us a promise to make an incision in the abdomen, to allow the gas to escape, before we left. The increasing odour of decomposition, hastened by the warmth of the plaster, warned us that this would be no agreeable task; so we drew lots to decide who should undertake it. Fortune allotted the duty to Mr. Moore. We all withdrew from the room, and stood outside the half-open door, through which he passed, with lips resolutely set, a candle in his left hand, and in his right a long-bladed knife. As he approached the huge body, not half liking the part he was to play, he looked in the semi-darkness like an assassin urged on to crime by his companions. We heard the stab given; the confined air rushed out through the gash with a sound like a groan from a wounded victim, or the howl of the wind between the window-frames on a winter's night. Moore fled from the scene of his deed; the stench followed close at his heels, but we shut the door against it, and congratulated ourselves on the accomplishment of our work. Suddenly Mr. Buckland remembered that he had left his watch on the mantelpiece. He looked suggestively at his secretary, who still clutched the tragic knife, but Mr. Moore's answer was something like Macbeth's—

> "I'll go no more;
> I am afraid to think what I have done;
> Look on't again I dare not."

John was, of course, the forlorn hope. The door was partially opened, and the boy tried to enter. As he encountered the terrific stink, he almost fell back; but, ducking down his head, he butted at the foul air, fought it with his fists as if it were something solid, succeeded in getting the watch, and speedily retreated. But John carried home with him in the recesses of his clothes enough of that fœtid odour to give his mistress a very fair notion of its quality.

The specimen which we cast was a small one of its kind, for this whale sometimes attains to a length of twenty-four feet. It is generally jet black on the back and sides, the under part of the body being of a lighter colour, and the throat, as well as a streak along the centre of the belly, white. Mr. Couch says, in his "Cornish Fauna," that a whole herd is sometimes seen at sea of a cream-colour, and that single specimens of a light tint are not uncommon. He adds that these cannot be the Beluga, or White Whale, as the latter is without a dorsal fin. But as I am not aware that an albino has ever been observed amongst the thousands of Caaing Whales taken in the north of Scotland and elsewhere, I am doubtful of this. Although the Beluga has no elevated dorsal fin, the rudimentary one, or ridge which represents it, is so strongly marked by its black upper edge that it might well be regarded as a fin when seen well out of the water, as it usually is every time the animal rises to "blow."

The dorsal fin of the Caaing Whale is about fifteen inches high, scimitar shaped, and rounded at the extremity. The pectoral fins are also curved, long, narrow, and tapering. The teeth are conical, sharp, slightly curved inward at their summit, and very slightly set in their sockets. Their number varies, even in adult individuals, from eighteen to twenty-six in each jaw. When the mouth is shut they lock in between each other like the teeth of a gin-trap, so that if once seized, a fish or cuttle, on which this whale feeds, has little chance of escape. In the aged animal some of the teeth are deficient, in sucklings none are visible.

The head is very short and the forehead prominent and rounded, from which it has received the name *Globicephalus*. One of the common appellations of this whale in Shetland and Orkney and on the Caithness coast is the "Bottle-nose," and this has led to its having been frequently confounded with a species to which that title has much more appropriately been given. The true "Bottle-nosed Whale" is *Hyperoodon rostratus*, or *butskopf*, which has a beaked snout two feet long. It differs from the Caaing Whale (*Globicephalus melas*) not only in appearance, but also in its habits. It does not travel in herds, and it is seldom that more than three—male, female, and cub—are found together. Therefore, when mention is made of a "school" or "shoal" of Bottle-nosed Whales having been met with, it may be understood at once that the true Bottle-nosed or Beaked Whale cannot be referred to, but that probably the Caaing Whale is meant. Dewhurst, in his work on the Cetacea, has mixed up together these two genera, and as he has been sometimes quoted as an authority, he has "confusion worse confounded."

In addition to these we have the Bottle-nosed Dolphin (*Delphinus tursio*); and besides these three recognised by the name, sailors call every minor whale, or even shark, with which they are unacquainted, a "Bottle-nose." One frequently sees a paragraph in the papers telling of a shark or small cetacean having been cast ashore or taken in a fisherman's nets, and sagely concluding—"it was supposed to be of the 'Bottle-nosed' species."

The Shetlanders' name for *Globicephalus melas*—the "Ca'in'" Whale—has no reference to its "calling," as has been by some supposed, but is derived from the Scotch word "*caa*," signifying to "drive," in allusion to the ordinary mode of capturing it by driving it ashore. It is the most sociable and gregarious of all the whales, and immense flocks of this species are often seen. The leaders of the herd are followed with blind confidence by the main body, and fishermen are well aware that if the former can be guided or driven into shallow water, the rest will follow them and run impetuously aground, and that the capture of the whole, or the greater part of the school, is certain. From this it has also been called the "Leading Whale," and hence Scoresby's specific name for it, "*Deductor*."

When, therefore, a school of whales is sighted off the coast, the news is passed on to the inhabitants of the neighbourhood with the speed and urgency of the "fiery cross;" and men, women, and children hurry to the shore in a general and simultaneous rush. At the cry of "*Whales! whales!*" all occupations are cast aside—the cattle, the horses, and the half-cooked food upon the fire are left to take care of themselves—for the harvest of the sea, not sown by man, has to be quickly reaped—now or never. Boats are manned and launched, even the oldest and leakiest, like the ramshackle old shandredhans one sees only on the Derby Day, being put in requisition. Before they leave the beach all hands set to work to load them with a good supply of stones, and then the flotilla starts—

generally under the command of some veteran fisherman as commodore. Silence is now observed; for the object is to place the boats seaward of the whales, cut off their escape in that direction, and drive them to the land. If the shore be rocky their capture will be difficult and uncertain, and the attempt possibly dangerous; so the herd must be judiciously guided towards some sandy bay offering more suitable ground. Slowly the boats creep round the shoal, range up in crescent line, and gradually close in: the whales become alarmed; the leaders, generally the older bulls, raise their heads above the water and reconnoitre; presently they turn about, swim towards the investing line, and appear inclined to charge through it. If they have courage to attempt the passage the whole drove will follow them. But they are met with a hideous din of shouts, and yells, and howling cries, and splashing of oars, and stamping of feet on boards; the champions of the host are daunted, waver, and turn tail; volleys of stones hurled at them increase their terror and complete their defeat; and, routed and panic-stricken, they flee precipitately from their pursuers, and, plunging wildly through the shallow water, fling themselves headlong on the shore. Then commences a scene of slaughter which it is almost impossible to describe. Spears, sickles, and spades, axes and pickaxes, pokers and shovels, hammers, hatchets, and harpoons, and all other things that can be used as weapons, are brought into use; and, amidst a pandemonium of mad excitement, and the mingled sounds of deadly blows, the shouts of panting men, the screeching of loose-haired women, fierce for the moment as Parisian *petroleuses*, and the splashing, struggling, groaning, and bellowing of the poor stranded, wounded whales, the work of butchery goes on till every one of the ponderous animals has been hacked and beaten and stabbed and gashed to death, and the sea runs red and breaks in bloody foam around the carcasses of the slain.

These whales are very timid, and there is seldom any danger incurred in the chase of them, though accidents have occasionally happened by the upsetting or staving-in of boats in the scurry; and an instance has been known of a fatal blow from the tail of a large one. In the Faroe Islands, where the Caaing Whale is expected annually, ropes to which wisps of straw are tied are stretched from boat to boat of the encircling squadron, and generally form, it is said, an effectual barrier against the shoal heading out to sea. But this is not always the case; the chances of loss are sometimes equal to those of capture, and the boatmen not unfrequently have the mortification of seeing a shoal of a thousand or more escape, even after being apparently in their power.

The number of whales sometimes taken in this manner is almost incredible. Captures of two or three hundred at one time are not uncommon; but successful hauls of far greater importance have been recorded. In an old history of Faroe, by Provost Lucas Jackson Debes,* it is mentioned that in 1664 the inhabitants drove ashore and killed about a thousand of these whales in two excursions only. Eleven hundred and ten were stranded and captured in the winter of 1809—1810, at Hvalfjord, Iceland; and Mr. Bell says,† on the authority of the Rev. Mr. Barclay, that in 1834 a shoal of seven hundred and eighty was taken at Sumburgh, in Shetland. An account is given in the "Zoologist," 1846, quoted from "John O'Groat's Journal," of the enormous number of 1,540 whales having been killed on the 22nd of September of that year in Quendall Bay, Lerwick. These were all despatched within two hours. The "Examiner" of the 27th of the same month reported that no fewer than 2,800 had been killed in the Faroe Islands during the previous six weeks.

As the blubber of these whales is from three to four inches thick, and was sold by their captors at £10 per ton, the importance of the whale-harvest to these islanders is evident. Cargoes of the bones are shipped to England for manure, and within the last half-century their flesh has been utilised in an unexpected manner.

Mr. (since Sir Walter) Trevelyan, in a communication to the "Edinburgh New Philosophical Journal," in 1844, mentions that in the previous year the natives of the Faroe Islands, for the first time, tried nets, and "their success was splendid." The number of whales thus taken in 1843 was 3,146, from which oil to the value of £5,665 was obtained. The people, up to that time in the habit of using the flesh of these animals as food for themselves, then began to apply it to the support of their cattle, for whom it was found to make excellent winter fodder. For this purpose the flesh is cut into long narrow strips, and dried, without salt, in the air. When dry it will keep good for two years. When used it is cut into smaller strips, two or three inches long, and slightly boiled; any oil rising to the surface is skimmed off, and then the soup and meat are given to the cows with about one-half or one-third of the usual quantity of hay. On this food they appear to thrive well; they give an increased quantity of milk, and neither it nor the cream has any unpleasant flavour, as they have when the cows are fed on dried fish, as in Iceland and Greenland. Many cows and oxen used to perish in Faroe during the winter from scarcity of fodder, and it is calculated that the lives of six hundred are annually saved by the use of whale-meat. Sir Walter remarks that it might be found useful in Shetland and Orkney, where, from the flesh of the Caaing Whale being disliked as food, a great quantity of it is wasted which might be profitably employed in this way. It would certainly be a more valuable application of it than for manure, and if the supply were at all regular it might enable the inhabitants to increase their stock of cows in winter, and thus add much to their domestic comfort.

Whales, according to the law of the land, are "royal fish"—droits of the crown; but this claim has been long since abandoned as regards the Caaing Whale. The custom in Shetland is that the proceeds of the chase are divided in certain proportions, and according to a graduated scale, among the captors, after deducting a certain share for the proprietor of the land adjacent to the shore where the fish are stranded. I do not know whether the same regulations are acted on at Faroe, which is an appanage of the crown of Denmark.

I have alluded to the groans and bellowing of the stranded whales. That some of the cetacea thus express their consciousness of danger is well authenticated, and has been long known. Aulus Gellius says that the cries and groans of the many dolphins taken by the crew of a ship on board of which he was, were so terribly like those of human beings deploring their sad condition, that they caused him to feel the deepest grief and pain all night.

* Written in Danish, but published in London, 1676. 12mo.
† "British Quadrupeda." 1st Edition, p. 185.

I have never heard any of the porpoises which I have had under my own prolonged observation utter a sound, but Mr. Bell records, in his "British Quadrupeds," his having been told of an instance of this by his friend and relative, Dr. Thomas Bell Salter, of Poole. Many years ago, he said, three porpoises, which wandered up the Wareham river, were penned in by a fence above and below them, in order to retain them for exhibition; but they plunged so violently, and their cries were so distressing, that after being kept in confinement for three days, they were taken from the water and slaughtered.

The men who caught the Grampus griseus at Sidlesham, near Chichester, which I described in a paper read before the Zoological Society, December 4th, 1877, told me that its groans were grievous to hear; and D'Orbigny mentions that four of this species stranded during the night at l'Aiguillon, La Vendée, disturbed the whole neighbourhood by their bellowing.

Mr. Couch mentions, in his "Whales of Cornwall," that a Caaing Whale, taken on the Cornish coast, bellowed loudly when taken; and that another, of the species of which he was uncertain, uttered a loud note, which the fishermen who heard it compared to the sound of the horn then usually employed by the postman. This, for three times, when the animal rose to the surface, was repeated at intervals of half a minute, and on hearing it, the others in its company hastened towards it, and followed it for a long distance.

Dr. Neill says, in his "Tour in Orkney and Shetland," that when the Caaing Whale strikes the ground, it sets up a howling cry, and immediately others crowd to the spot as if for its relief.

Stow tells of a whale—probably a rorqual—sixty feet long, cast ashore near Ramsgate, in 1574, that, "for want of water, beating himself on the sands, he died; before which, he roared, and was heard more than a mile in the land."

In "Loudon's Magazine," a grampus (*Orca*), taken in Lynn Harbour, November 19th, 1830, is described as having given utterance to horrible groans whilst being despatched.

There is, therefore, no room for doubt as to the capability of these highly organised animals giving audible expression to their fear and suffering. Aristotle had a truthful perception of the mode of utterance of these expressions of anguish, which are not formed by the mouth but issue from the blowhole. He distinctly says "the sound comes from the pharynx and the lungs."

Whalers are so well aware of the devoted attachment of the mother to her young one, that they endeavour to harpoon the cub first, knowing that the parent will remain by it in its difficulty, and that thus her capture is assured to them. Oppian says—I do not know whether whalers can confirm him as to the main fact—that under these circumstances—

> "The seas relenting, hear the parent's moans,
> Swell with her tears and murmur with her groans."

The Caaing Whale is found both farther north and farther south than the localities I have referred to. It visits Iceland and the whole coast of Danish Greenland, and is known to enter the Mediterranean. It is occasionally, but not frequently, found in the south of England. In 1748, forty were taken in Torbay, and Mr. Couch describes it as not rare on the Cornish coast.

Lewis Morris, in his work on the Harbours, Bays, and Roads in St. George's Channel, 1740, writes:—"In the year 1732, a shoal of 113 Bottle-nose Whales was stranded at Morfa Bach, Aberystwith, and the oil and blubber yielded great profit to the people about."

In an old newspaper, the "County Journal," of April 26th, 1729, is a paragraph which, from the number and size of the fish mentioned, I have no doubt refers to this species. "On Monday," it says, "some persons coming up the river (Thames) in a boat, near Lee (Essex), discovered a large fish coming out of a creek near the Blyth Sand, which one of them struck with a knife, upon which it made back. The tide going out, they took this fish, with thirty-four more, most of which were twenty-four to twenty-six feet in length, making in the whole about eighty tons, and are thought to be worth £500. Many of them have been brought to town, and have been shown as a sight."

The Caaing Whale is also seen in the Atlantic, and appears to be identical with the "Blackfish" of the American coasts. If this be so, it has a very extended geographical range, as the "Blackfish" is common in the North Pacific.

Varieties

AULD REEKIE.—Every one knows that this familiar name of the Scottish capital was given from the smoky cloud that astonished country folk when they looked upon the ancient city. Of course, this was in old times, when the Old Town alone existed, before Edinburgh had extended its boundaries, or had gained the grander name of the "Modern Athens." A northern philologist, in a work entitled, "Landmarks of Scottish Life and Language," resents the homely origin of the name, and says, "The name of Auld Reiky is probably the Scottish *rik, ryke*, a kingdom, a realm, and indicating that Edinburgh is the Kingdom-town or Capital city. The old English is *reyc*, and the Norse is *riki*—power, might, empire, kingdom, as in Austurriki, Austria. Compare Rikit-moss—*i.e.*, the peat-moss of the community or local commonwealth (in the Lennon); also Harrige or Harris—*i.e.*, the host-realm, the kingdom of the army or host (of Northmen). The best version of Auld Reiky that occurs to me is Empire City."

A HAPPY VALLEY.—Utopias are all outdone if we believe what is written by Mr. James Shaw in a letter to the "Times" concerning a patriarchal administration in the valley of Cwm Avon, in Wales. Some months ago Mr. Shaw purchased the valley and the copperworks of the late Governor and Company of Copper Miners of England—a corporation which dates from 1691. In this valley are 1,100 houses, inhabited by 8,000 people. These houses, the churches, the schools, the shops, the market-place—all is the property of Mr. Shaw. There is no local board, no aldermen, no council, no specific management of a popular nature whatever. Mr. Shaw is despot of the place. His word is the ruling law, his wish the final pronouncement. He writes from a philosophic desire to know how best he can supplant his own authority; and the answer is by no means clear. There is no newspaper, and public opinion finds growth in four public-houses, which do not thrive, and in a butcher's shop. Mr. Shaw finds the four publicans without any influence whatever, and we are not surprised to learn that no drunken man or woman is heard of. The police station has had no inmate save the sergeant and his one subordinate during Mr. Shaw's reign. The workmen are all diligent, sober, religious, and peaceable. There was proposed a reduction of wages; and the men, having heard the reason, pronounced in the affirmative. There are fourteen places of worship, and the services on week-days are well attended. There are 1,350 children at school, and last year these young ones earned £850 for their teachers under the Act. There is no hospital, no infirmary, no workhouse; and the only man in the community who does not, literally speaking, earn his daily bread is the doctor—who has retired from practice and is not missed. Mr. Shaw asks what he is to do? Is he to continue despot, or to introduce local government?